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THE NEST AND EGGS OF BACHMAN'S WARBLER,
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BACHMAN'S WARBLER was discovered by Dr. John Bachman "a few miles from Charleston in July, 1833," and named in honor of him by Audubon, 'Birds of America,' Vol. II, p. 93.

On May 15, 1901, I rediscovered this species in South Carolina, the specimen (an adult male) being taken near Mount Pleasant, and recorded by me in 'The Auk,' Vol. XVIII, July, 1901, pp. 274, 275. Since the rediscovery of this bird on May 15, 1901, I have made every exertion to find others, but it was not until May 14, 1904, that I succeeded in securing another specimen, which was taken on the plantation of Mr. B. B. Furman, in Christ Church Parish, Charleston County.

On May 13, 1905, I discovered three pairs of these rare birds, and succeeded in taking two young that were being fed by their parents. The young male was being fed by the adult male, and the young female by the adult female! The old birds were not molested. These young birds were the first ever taken, and were described by my friend Mr. William Brewster in 'The Auk,' Vol. XXII, October, 1905, pp. 392-394, and also recorded by the writer in the same volume, p. 399. These birds were observed in I'On Swamp, which was named for the late Col. Jacob Bond I'On (of the U. S. Army in the war of 1812), and which is now a part of Fair Lawn plantation, the property of Mr. B. B. Furman.

That this swamp is the type locality where Dr. Bachman took the birds in July, 1833, there can be little doubt, as there is a strong supposition that Dr. Bachman often visited Col. I'On, and may have taken the birds in this swamp.

The first nest and eggs known to science were taken by Mr. Otto Widmann, in the St. Francis River region of southeastern Missouri on May 17, 1897, and described by Mr. Ridgway in 'The Auk,' Vol. XIV, 1897, p. 309. This nest contained three pure white eggs.

During the spring of 1906, I made a special effort to find the nest and eggs of this rare warbler, and knowing that the birds which I had seen and did not molest in 1905 would return to the same swamp to breed the following spring, I determined to devote my entire time with the hope of finding a nest. On April 17 I succeeded in finding two nests, each of them containing *four* eggs. The first nest was placed upon a dead palmetto leaf, being supported by a small aquatic bush, and was completely hidden by a living palmetto leaf which overhung the nest, like an umbrella. It was in a dense swamp, two feet above the ground, and contained four pure white eggs, almost ready to be hatched.

The second nest, which was within one hundred yards of the first one, was built in a bunch of canes (*Arundinaria tecta*), and supported by a palmetto leaf. This nest was three feet above the ground, in a comparatively dry situation, and contained four pure white eggs in an advanced stage of incubation. The females were incubating when the nests were found, and I could scarcely realize that I had at last found the nest and eggs of Bachman's Warbler, for which I had looked in vain for nearly twenty-five years, in almost every swamp from the neighborhood of Charleston to the Savannah River.

The female is a very close sitter; indeed so close that I found it necessary to touch her before she would leave the nest. This habit was the same in both females. Having carefully marked the nests, I searched the swamp for others, but was unsuccessful that day. Upon returning to the nests about three hours later, the females were still incubating, and would not leave until they were actually touched with my finger.

The two nests are similar, being constructed of fine grass, cane leaves, and other leaves, the latter skeletonized. The second nest, taken April 17, is $6\frac{1}{2}$ inches high, 6 inches wide, 2 inches wide at rim, and 2 inches deep. It is composed almost entirely of dead cane leaves, a little Spanish moss (*Tillandsia usneoides*), and a few skeletonized leaves. The eggs measure $.60 \times .47$, $.61 \times .46$, $.62 \times .46$, $.61 \times .47$ inches. This nest and four eggs is now in the collection of my friend Col. John Eliot Thayer of Lancaster, Mass.

Knowing that the birds would at once commence to build new

nests, I visited the place almost daily with the hope that I would be successful in finding them; but in this I was mistaken, for while it was comparatively easy to locate the singing males, it was next to impossible to observe the females; in fact, the females were not observed except when they were feeding young birds, and those were not the birds that I had deprived of their nests and eggs. As far as I was able to determine, there were but four or five pairs of these rare birds in the greater portion of the swamp that I explored most thoroughly.

On April 28, I found a nest which contained one young bird, apparently five or six days old, and secured it on May 9 while it was being fed by its parents. This young bird could fly with ease, although the tail was not half developed. The nest which contained the young bird was built in a low bush about three feet from the ground, in the densest part of the swamp, and was within ten or twelve feet of a Swainson's Warbler's nest that contained three eggs. This nest is large and bulky. The foundation is composed of Spanish moss, with distinct layers of skeletonized leaves, interspersed with leaves of the cane and pine needles, which appear at and around the rim.

A deserted nest, which contained three eggs, was found on May 9, in a bunch of blackberry and canes (vertical shoots), within one foot of the ground, on the edge of the swamp and within twelve feet of a Swainson's Warbler's (*Helinaia swainsonii*) nest that contained four eggs. The foundation of this nest is Spanish moss, while skeletonized leaves, a few small twigs, and dead cane leaves constitute the other materials. The interior of the nest is 2½ inches in depth.

On May 12 I found an exquisite nest, placed on a vine and within one foot of the ground, from which the young had evidently but recently flown, as I encountered them in the near vicinage. It is constructed chiefly of a species of moss (*Hypnum*) that grows on low bottom lands more or less covered with water. Interspersed among this moss are dead leaves which are partially skeletonized, as well as a few dead cane leaves. This nest is almost a perfect circle.

The sixth and last nest (from which the young had long since left) was found on June 2, in a low bush, within two feet of the

ground, in a dense thicket in the swamp. It is composed of grasses, parts of skeletonized leaves and pine needles.

All of the six nests that I found are lined with a peculiar black fibre which may be the dead threads of the Spanish moss (*Tillandsia usneoides*) or a black rootlet. The lining of the nests taken on April 17, while very lustrous black, cannot belong to the Spanish moss, which is very distinctly jointed, and I cannot discover any joint whatever in this substance. The nest taken by Mr. Widmann on May 17, 1897, was apparently lined with the same material. In many respects the nest of Bachman's Warbler is very similar to that of Swainson's Warbler.

This species is eminently a swamp lover during the breeding season. The song is wiry or insect-like, and very closely resembles the song of the Worm-eating Warbler, while it also bears a strong resemblance to the songs of the Parula Warbler and Chipping Sparrow.

Although I practically lived in the swamp from April until June 19, in order to determine whether the birds raise two broods, I am convinced that only one brood is raised, as this species is a very early migrant after the breeding season, it having been taken at Key West by Mr. J. W. Atkins as early as July 17.

As the bird is very rare in this State, I am unable to give the dates of its arrival and departure — that is the earliest and latest ones — but I heard a male singing on April 4, 1905, and I think I saw two males about the middle of March. The song of the male is evidently of short duration, as I have not heard it sing later than May 26. The female has no song and its call-note resembles the word *zeep*.

A young male taken May 30, 1906, while partly in the first plumage, and first winter plumage on the back and sides, was, however, assuming the black markings on the jugulum and fore breast of the adult male, while the crown was ashy instead of black. In 'The Auk,' April, 1891, p. 156, Mr. Brewster states: "Our males, thirty-six in number, vary exceedingly in respect to the depth and extent of the black of the head and throat, but most of the black feathers are narrowly tipped with ashy or olive yellow which doubtless disappears later in the season." Mr. Brewster's specimens were taken in March. My breeding males all show the olive yellow edging on the black feathers.

The swamp in which this warbler breeds is heavily timbered and subjected to overflow from rains and reservoirs. The trees are chiefly of a deciduous character, such as the cypress, black gum, sweet gum, tupelo, hickory, dogwood, and red oak. In the higher parts of the swamp short-leaf pines, water oaks, live oaks, and magnolias abound. The undergrowth is chiefly cane, aquatic bushes, and swamp palmetto, while patches of blackberry brambles and thorny vines are met with at almost every step. This primeval forest is flanked on the western side by an enormous reservoir, the water of which is used to flow the rice fields that are in close proximity to the swamp. The entire country is very swampy, but Bachman's Warbler appears to inhabit only a restricted area in one of the many swamps. While I have searched for the bird most diligently in localities which seemed in every respect suitable to its wants, I have met with it only near the reservoir where buttonwood bushes were growing near the edge of the forest. In order to study the habits of this warbler one must be prepared to encounter armies of ticks, red bugs, mosquitoes, and moccasin snakes, with which these dark and gloomy woods are filled.

Bachman's Warbler is a high-ranging bird, like the Yellow-throated Warbler, and generally sings from the top of a sweet gum or cypress. It appears to have regular singing stations during the breeding season, and upon leaving a tree it flies a long distance before alighting. On this account it is impossible to follow the bird through the dark forest, and it can only be detected by its song. I have occasionally seen the males in low gall-berry bushes within six or eight inches of the ground, but their usual resorts are among the topmost branches of the tallest forest trees.

This swamp is a veritable paradise for such breeding forms as the Hooded, Parula, Yellow-throated, Prothonotary, and Swainson's Warblers. The Hooded Warblers are the commonest breeders and they outnumber all the other swamp-loving birds. During the months of April and May the song of thousands of breeding birds, as well as of migrants, fill the swamp with all kinds of music, the finest singers being Swainson's Warbler and the Wood Thrush.

It is difficult to understand what becomes of the vast number of young birds which are annually reared in this swamp country. It seems certain that fully 50% do not return the following spring to breed, for if they did the woods would be simply filled with them.

Since Bachman's Warbler was discovered in 1833 but seven nests have been recorded — one taken by Mr. Widmann on May 17, 1897, and the six which I have described. There is, I believe, another nest and three eggs in the collection of Mr. J. Parker Norris, Jr., that were taken by Mr. Widmann in Missouri, but I am of the opinion that this has never been recorded.